

# TABLE OF CONTENTS

## January - December 1998 • Volume 107

### JANUARY

1997 Progress Report		
Foreword .....	CHARLES JABLONSKI	7
Engineering Report .....	WILLIAM C. MILLER	8
Motion Pictures .....	ALAN MASSON	11
Television .....	ROBERT SEIDEL	14
Education .....	FUNG FAI LAM	16
Education .....	DAVID F. E. CORLEY	22
International Overviews .....	ERIC HITCHEN, NOBUO MI, AND TETSUO MITSUHASHI	25
Hope Reports .....	THOMAS W. HOPE	55
Technical Papers		
Are Movies too Loud? .....	IOAN ALLEN	30
Bedknobs and Broomsticks: Using a Distressed Work Print as a Color Master Positive .....	SCOTT MACQUEEN	45
A Television Resolution Comparison for 525 Line 4:3 Vs. 16.9 Vs. HDTV .....	HENRY MAHLER	48
Video Servers "Shared Storage" for Cost Effective Realtime Access .....	TODD ROTH	54
Overcoming Current Limitations of Personal Computers in Replacing Traditional Video Production Equipment .....	STEVE HARTFORD	58
Report on ISO/TC 36 Meeting, October 13-17, 1997, Belgium .....		65
Second Annual SMPTE Film Conference .....		67

### FEBRUARY

Message from the President, SMPTE Conferences .....	DAVID L. GEORGE	86
Message from the Executive Director, New Board Members .....	FREDERICK C. MOTTS	87
Unusual Applications of Video Projection .....	TONY CLYNICK	90
Results of Laboratory and Field Tests of a COFDM Modem for ATV Transmission in 6-MHz Channels .....	Y. WU, M. GUILLET, B. LEDOUX, AND B. CARON	94
User Requirements and Technologies for Automated Storage and Retrieval .....	JURGEN HEITMANN	100
The Sharpness Indicator .....	IVAN PUTORA	106
The dSam Depth of Field Test Chart .....	DAVID SAMUELSON	113
Report on SMPTE 139th Technical Conference and Exhibit, New York City, Nov. 21-24, 1997 .....		117
Second Annual SMPTE Film Conference, Los Angeles, June 12-14, 1998 .....		128

### MARCH

Message from the President, Headquarters Responsibility .....	DAVID L. GEORGE	152
Message from the Executive Director, Headquarters Staff .....	FREDERICK C. MOTTS	153
Basic Function of Integrated TV Services for ISDB .....	K.USUI, K. KAI, M. UENO, A. OHYA, AND T. ISOBE	154
A Design of the Media Processing Unit for a Multimedia Communication Terminal .....	KYEONG-YEOL UY AND JONG-HOON PARK	160
The HDTV Camcorder and the March to Marketplace Reality .....	LAURENCE J. THORPE, FUMIO NAGUMO, AND KAZUO IKE	164
Strategy for Promotion of HDTV Service and for Implementation of Digital Broadcasting in Japan .....	TAKEHIRO IZUMI	178
Video Integration in Multimedia Applications and the Use of Various Delivery Channels .....	NORBERT GERFELDER	183
Second Annual SMPTE Film Conference, Los Angeles, June 12-14, 1998 .....		193
140th SMPTE Technical Conference and Exhibit, October 28-31, 1998, Pasadena, Calif. ....		194
AMPAS Presents Scientific and Technical Academy Awards, .....		197

### APRIL

Message from the President, Knowledge is Key to Success .....	DAVID L. GEORGE	218
Message from the Executive Director, Strategy for Success .....	FREDERICK C. MOTTS	219
A Digital Video Disk Array Primer .....	CHARLES F. MCCONATHY	220
Traditional Film Restoration Techniques in a Digital World .....	PETER EAVES	224
Validating Objective Measures of MPEG Video Quality .....	G. W. CERMAK, S. WOLF, E. P. TWEEDY, M. H. PINSON, AND A. A. WEBSTER	226
Picture Quality Editing for Variable Rate Compressed Video .....	JAY YOGESHWAR AND MIKHAIL TSINBERG	236
A Services-on-Demand Laboratory Demonstrator with PC-based Set-Top Boxes .....	BERNHARD GROSS, STEPHAN BREIDE, AND WOLFGANG RUPPEL	243
Report on the 32nd SMPTE Advanced Motion Imaging Conference, February 5-7, 1998 .....		247
Second Annual SMPTE Film Conference, Los Angeles, June 12-14, 1998 .....		253
140th SMPTE Technical Conference and Exhibit, Pasadena, Calif., October 28-31, 1998 .....		253

## MAY

Message from the President, Technological Development of Digital Television .....	DAVID L. GEORGE	290
Message from the Executive Director, SMPTE Standards Development .....	FREDERICK C. MOTTS	291
Nonlinear Effects in High-Density Optical Recording .....		
.....L. AGAROSI, S. BELLINI, C. BEONI, AND P. MIGLIORATI		292
Red Readers, Silver, High-Magenta, and Cyan Analog Sound Tracks—Review and Status .....		
.....PAUL R. GOLDBERG		298
525-Line Progressive Scan Digital Broadcasting System Via Satellite .....		
.....JOJI URANO, HIRONAO SAKAGUCHI, AND SHIN-ICHI TAMURA		307
The Restoration Business Part One: No Restoration Without Conservation .....	GRANT LOBBAN	311
Chemical Control of High Speed Developers .....	DAVE ROGERS	314
140th SMPTE Technical Conference and Exhibit, Pasadena, Calif., October 28-31, 1998 .....		303
Second Annual SMPTE Film Conference, Los Angeles, June 12-14, 1998 .....		305

## JUNE

Message from the President, Sharing Ideas and Information .....	DAVID L. GEORGE	338
Message from the Executive Director, Finding Propective Members .....	FREDERICK C. MOTTS	339
Motion Estimation Method Using the Spatiotemporal Characteristics of Moving Objects .....		
.....H. SONEHARA, Y. NOJIRI, K. IGUCHI, Y. SUGIURA, AND H. HIRABAYASHI		340
Objective Measurement of Compressed Digital Television Picture Quality .....		
.....ICHIRO YUYAMA, YUKIHIRO NISHIDA, AND EISUKE NAKASU		348
An Imaging System to Visualize Gymnast's Form and Locus—Multi-Motion .....		
.....NOBUYUKI YAGI, SANG GIL LEE, AND HIDEO NOGUCHI		353
The Restoration Business Part Two: Conservation Counts .....	GRANT LOBBAN	363
Laboratory Grading .....	JACK HOUSHOLD	365
Second Annual SMPTE Film Conference, Los Angeles, June 12-14, 1998 .....		360
140th SMPTE Technical Conference and Exhibit, Pasadena, Calif., October 28-31, 1998 .....		362
SMPTE Participates at NAB98, report .....		367

## JULY

Message from the President, Health Care and Life Insurance Benefit .....	DAVID L. GEORGE	404
Message from the Executive Director, The Benefits of Membership .....	FREDERICK C. MOTTS	405
Broadcast Applications of 4:2:2 MPEG .....	A. M. BOCK, G. M. DRURY, AND W. J. HOBSON	406
The HDTV Broadcast Standard: Subjective Evaluation of Proponent Systems .....	A. CHOPRA,	
.....P. CORRIVEAU, P. HEARTY, A. KENNEDY, B. LEAFLOOR, R. RENAUD, AND L. STELMACH		411
Film Scanning for DTV and Beyond .....	PETER R. SWINSON	427
The Restoration Business Part Three: The Quest for the Definitive Version .....	GRANT LOBBAN	432
Former SMPTE Presidents Gather for 2nd Annual Reunion .....		463
SMPTE Officials Unwind at Motion Imaging Conference .....		437
140th SMPTE Technical Conference and Exhibit, Pasadena, Calif., October 28-31, 1998 .....		450
IBC98, Amsterdam, September 11-15, 1998 .....		454

## Part II

### 1998 WORLDWIDE DIRECTORY FOR MEMBERS

## AUGUST

Message from the President, The SMPTE Registration Authority .....	DAVID L. GEORGE	530
Message from the Executive Director, Excerpts from Baron on RA (Sept. 1996) .....	FREDERICK C. MOTTS	531
A Realtime Pin-Registered TeleScanner .....	EDMUND M. DIGIULIO AND JAMES M. BARTELL	533
Preference Study of Peak Luminance vs. Resolution for Color Television Tubes .....		
.....G. CARONNA, G. SANTORO, AND P. TESTA		538
Reference Architecture for Digital Video/Audio Transfer and Streaming .....	AL KOVALICK	544
The Introduction of HDTV into Digital Television Networks .....	ALOIS BOCK AND GORDON DRURY	552
Second Annual SMPTE Film Conference Report .....		557
140th SMPTE Technical Conference and Exhibit, Pasadena, Calif., October 28-31, 1998 .....		560
33rd SMPTE Advanced Motion Imaging Conference, Orlando, Fla., February 25-27, 1999, Announcement ..		564

## SEPTEMBER

Message from the President, SMPTE Works for You .....	DAVID L. GEORGE	602
Introduction — The Task Force Final Report.....	WILLIAM C. MILLER	603
Engineering Committee Report		
Task Force for Harmonized Standards for the Exchange of Program Material as Bit Streams —		
Final Report: Analysis and Results.....		605
Preface.....	HORST SCHACHLBAUER AND S. MERRILL WEISS	615
Task Force Participants.....		814
33rd SMPTE Advanced Motion Imaging Conference, Orlando, Fla., February 25-27, 1999 .....		816
140th SMPTE Technical Conference and Exhibit, Pasadena, Calif., October 28-31, 1998 .....		818
Exhibit Directory .....		824

## Part II

### SUPPLEMENT—1998 WORLDWIDE DIRECTORY FOR MEMBERS

## OCTOBER

Message from the President, History and Progress.....	DAVID L. GEORGE	868
Message from the Executive Director, SMPTE Hits the Mark Again.....	FREDERICK C. MOTTS	869
SDTV and Multiple Service in a DTV Environment.....	WILLIAM Y. ZOU	870
Distribution and Emission of Multichannel Audio Programs, and Implications for Post-Production .....		
.....	CRAIG TODD	879
Digital Dye Transfer—Work in Progress .....	SHARON BRAZIL AND BRUCE RICHARDSON	884
Electronic Acquisition for DTV Program Origination—Maximize the Frame, Minimize the Pain .....		
.....	BARRY MINNERLY	888
Super 35; Is It Super 35? .....	TAK MIYAGISHIMA	891
33rd SMPTE Advanced Motion Imaging Conference, Orlando, Fla., February 25-27, 1999 .....		897
140th SMPTE Technical Conference and Exhibit, Pasadena, Calif., October 28-31, 1998 .....		898
Exhibit Directory .....		903

## NOVEMBER

Message from the President, Challenges for the Society.....	DAVID L. GEORGE	944
Message from the Executive Director, Officers of the Society for 1999 .....	FREDERICK C. MOTTS	945
1920 x 1080 Pixel Color Camera with a Progressive Scan Output at 60 Frames/Sec.....		
.....	WILLIAM E. GLENN AND JOHN W. MARCINKA	947
An Open Model for Audio Elementary Stream Encoding in a DTV Distribution Chain .....		
.....	KENT TERRY AND CRAIG TODD	950
An Engineering Approach to Consistent Images: Control of Video and Film Image Quality in TV Production .....		
.....	FRED BENEDIKT, DAVID F. E. CORLEY, AND ROBERT ROSS	961
Applications of Digital Video: Bandwidth Requirements on Shared Media Servers and Networks .....		
.....	YING KI KWONG, JOHN CVETKO, AND KYLO GINSBERG	970
MPEG Splicing: A New Standard for Television — SMPTE 312.....	NORM HURST AND KATIE CORNOG	978
Film Printing .....	DAVID POPE	989
33rd SMPTE Advanced Motion Imaging Conference, Orlando, Fla., February 25-27, 1999 .....		967
SMPTE's '99 Conference and Exhibit, July 13-16, 1999, Sydney, Australia .....		968
1997 Financial Reports .....		992

## DECEMBER

Farewell Message from the President.....	DAVID L. GEORGE	1016
Message from the Executive Director, Governors of the Society for 1999 .....	FREDERICK C. MOTTS	1017
Engineering Report: ATSC Implementation Subcommittee Report on Findings of the Top Down Meetings .....		1023
List of Participants .....		1067
Historical Equipment Collections: Report of the SMPTE Archival Papers and Historical Committee.....		
.....	EDGAR A. SCHULLER, CHAIRMAN	1110
33rd SMPTE Advanced Motion Imaging Conference, Orlando, Fla., February 25-27, 1999.....		1133